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Abstract

Electronic devices having voltage variable capacitances are formed using CMOS fabrication processes. The devices are capable of decreasing noise of one polarity and amplifying noise of the opposite polarity. For one embodiment, a transistor having a gate oxide layer is operated in the depletion region to form a capacitive device. In an alternate embodiment, a CMOS transistor having an n-type substrate, an p-type polysilicon gate, an n-type source and drain, and a gate oxide layer is operated in the depletion region to form a capacitive device. For one embodiment, the disclosed devices are used in circuits for decoupling multiple voltage power supplies. In an alternate embodiment, the devices are used in circuits for damping power supply grid network resonances. In still another alternate embodiment, the devices are used in circuits for decoupling noise in power supply signals operating at low voltages.

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